

Charge No.: 1307
Program Title: Reconstituted Tobacco Development
Period Covered: June 30-August 11
Project Leader: G. Gellatly

I. RL Process

The third meeting of the steering committee for Park-500 Line III Design was held on 7/30/80 to make a recommendation for the design of the blending and wet slurry transfer system.¹ Various designs suggested by Sirrine Engineering Company were considered and a recommendation was made to build a new blending area to service four lines with space for additional equipment to handle a separate blend for Europe if necessary on Line III. Building a new blending facility minimizes plant downtime (1-2 weeks) and could make use of existing equipment in the present blending area for possible separate European blend processing. To modify the present blending area would entail plant downtime of six months which would eliminate our RL inventory.

Extract liquor clean-up trials were run in the pilot plant and Park-500 by Alfa Laval, the centrifuge supplier. They demonstrated that their equipment could reduce the suspended solids content of the evaporator feed liquor by 50% of that remaining in the present liquor after the Bird centrifuge clean-up. There may be insufficient time for a production trial, however, before the order for Line III centrifuges is placed.

II. RL Product

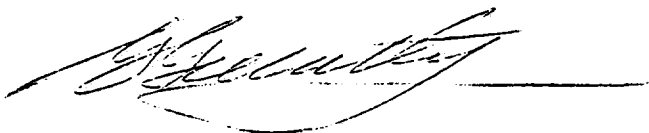
Engineering modifications to the paper machine were initiated to enable us to make larger rolls of base web. This will facilitate our running longer trials to compare the filling power of RL finished sheet prepared by Yankee drying versus tunnel drying the basic web before sizing. If these trials confirm a ten percent filling power advantage for tunnel drying over Yankee drying, a recommendation will be made to replace the Yankee drier with a tunnel drier in the pilot plant for continuous demonstration.

The breakage of RL product (as cut filler) was found to decrease when the tensile strength of the sheet increased. RL products prepared at Park-500 (one sample at 0.6 kg/in and a special test sheet at 1.2 kg/in tensile strength) and the pilot plant sheet (2.0 kg/in tensile strength) were used in the evaluation using 100% RL filler and 28% RL in MF blend cigarettes. The 100% RL filler was sieved before and after ballmilling with rubber stoppers and the long fraction breakage was found to decrease by 10% for each unit increase of tensile strength. Cigarettes containing 28% RL will also be evaluated for firmness, coal strength and loose ends. No significant difference between filler breakage of Park-500 RL (G) and RL (TEG) was seen by sieve analysis of filler product before and after ballmilling or processing through a cigarette maker.

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III. Denitration

The pilot plant electrodialysis unit was run continuously from 7/7/80 to 7/24/80 to accumulate sufficient running hours for Ionics Inc. to establish an estimate of membrane life. The total cumulative running time at the end of this run was 20 days. The volume of liquor (18% HWS-split flow mode) denitrated was 17,000 gallons. The recirculation rate (100 gal/min.) through the membrane stack was reduced by 15% each day but was restored almost to its original value by water flushing. On opening the stack for inspection an accumulation of calcium phosphate was found at the cathode in both the process and the brine streams and throughout the pathways of the membrane spacers. A thorough discussion was held with Ionics about the performance of the ED unit to date. They thought the membranes were not ionically fouled and would have an average life of at least six months. The mechanical fouling of the pathways in the stack was thought to be caused by the cathode not being electronically insulated from the liquor streams. New insulated cathodes were installed in the stack and another continuous denitration run was begun on 6/8/80 after acid washing the membranes in situ to regenerate their activity. After five days of operation the recirculation rate through the stack was reduced by less 10% (<2%/day) and a satisfactory denitration rate was being maintained. Technical analysis by the ED pilot plant operation by ourselves and Ionics will be completed by mid-September and a cost estimate for Park-500 completed by mid-October.



¹Park-500 steering Committee History #3 7/30/80.

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